Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-260

Guided Multiple Launch Rocket System/Guided Multiple Launch Rocket System Alternative Warhead (GMLRS/GMLRS AW)

As of FY 2015 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Report Documentation Page

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Selected Acquisition Report-SAR

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Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
BA - Budget Authority/Budget Activity
BY - Base Year
DAMIR - Defense Acquisition Management Information Retrieval
Dev Est - Development Estimate
DoD - Department of Defense
DSN - Defense Switched Network
Econ - Economic
Eng - Engineering
Est - Estimating
FMS - Foreign Military Sales
FY - Fiscal Year
IOC - Initial Operational Capability
$K - Thousands of Dollars
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MILCON - Military Construction
N/A - Not Applicable
O&S - Operating and Support
Oth - Other
PAUC - Program Acquisition Unit Cost
PB - President's Budget
PE - Program Element
Proc - Procurement
Prod Est - Production Estimate
QR - Quantity Related
Qty - Quantity
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
Sch - Schedule
Spt - Support
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting

Program Information

Program Name

Guided Multiple Launch Rocket System/Guided Multiple Launch Rocket System Alternative Warhead (GMLRS/GMLRS AW)

DoD Component

Army

Responsible Office

Responsible Office

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References

SAR Baseline (Production Estimate)

Army Acquisition Executive (AAE) Approved Acquisition Program Baseline (APB) dated May 30, 2003

Approved APB

Army Acquisition Executive (AAE) Approved Acquisition Program Baseline (APB) dated February 1, 2012

Mission and Description

The mission of the Guided Multiple Launch Rocket System/Guided Multiple Launch Rocket System Alternative Warhead (GMLRS/GMLRS AW) is to attack/neutralize/suppress/destroy targets using indirect precision fires. GMLRS provides Field Artillery units with medium- and long-range (70+ kilometers (Km)) fires while supporting brigade, division, corps, army, theater, Joint/Coalition Forces, and Marine Air-Ground Task Forces in full, limited, or expeditionary operations. GMLRS rocket is a solid propellant artillery rocket deployed from the M270A1 and the High Mobility Artillery Rocket System mobile launch vehicles. GMLRS/GMLRS AW uses an Inertial Measuring Unit with Global Positioning System assistance to guide the rocket to a specific point to deliver effects on target. GMLRS/GMLRS AW is transported and fired in a Rocket Pod Container that consists of six rockets. GMLRS is currently designed to carry two warhead payload variants, GMLRS Dual Purpose Improved Conventional Munitions (GMLRS DPICM) and GMLRS Unitary (GMLRS-U). A third variant of the GMLRS, the Alternative Warhead (AW), entered the Engineering and Manufacturing Development Phase after successful completion of Milestone B.

GMLRS DPICM (Increment 1)

The GMLRS DPICM (Increment 1) has a range of 70+ Km, contains 404 DPICM, and is used to provide precision fires on area targets including personnel and thinly armored vehicles. The GMLRS DPICM was an international cooperative development program with five nations (United States, United Kingdom, France, Germany, and Italy).

GMLRS-U (Increment 2)

The GMLRS-U (Increment 2) is equipped with a 200-pound Unitary high explosive warhead, has a range of 70+ Km, and is effective against multiple targets. The single warhead also limits collateral damage to areas surrounding the designated target.

GMLRS AW (Increment 3)

The GMLRS AW (Increment 3) is currently designed to replace the DPICM, provide similar effects at comparable range, and eliminate the probability of Unexploded Ordnance (UXO). The AW will satisfy the UXO requirements as defined in the June 19, 2008 Department of Defense Policy on Cluster Munitions and Unintended Harm to Civilians.

Executive Summary

GMLRS Unitary

The Precision Fires Rocket and Missile Systems (PFRMS) Project Office awarded the GMLRS Full Rate Production (FRP) IX Contract valued at $255.1M on December 20, 2013. The Undefinitized Contract Award FRP IX procures the Army, United States Marine Corps, and Italy FY 2014 requirements for 304 GMLRS Unitary Pods and 158 Low Cost Reduced Range Practice Rocket Pods. The contract includes an Option for the FY 2015 requirements.

The PFRMS Project Office executed a GMLRS Reliability Scoring Conference on August 1, 2013, and confirmed the GMLRS Unitary reliability improved from 0.93 to a 0.94 reliability.

On September 18, 2013, three tactically configured GMLRS Unitary rockets with Insensitive Munitions (IM) - compliant composite case motors and Ignition Safety Devices successfully flew 60-kilometers at the White Sands Missile Range, New Mexico and met all test objectives.

Two significant milestones occurred this year. On September 11, 2013, the PFRMS Project Office took delivery of the 20,000th GMLRS rocket. Deployed combat forces continue to rely on GMLRS Unitary and have fired over 3,072 rockets in combat.

GMLRS AW

The GMLRS AW Engineering and Manufacturing Development (EMD) Phase began on February 19, 2012.

Design Verification Test and Contractor Production Qualification Test (PQT) at the warhead level completed in April 2013 and December 2013 respectively.

In June 2013, Lockheed Martin completed its System Software Critical Design Review (CDR) and Warhead CDR for GMLRS AW.

On July 16, 2013, the program successfully completed the CDR at the system level. All Engineering Development Test flight tests have been completed successfully (seven rockets fired over three tests), placing the program on track against its reliability growth curve.

The GMLRS AW successfully conducted the Production Qualification Test (PQT) - three Flight Tests at White Sands Missile Range, New Mexico on February 6, 2014. Additionally, three arena tests, two Fast Cook-Off IM tests, and one Slow Cook-Off IM test were successfully conducted.

Part of the “Should Cost” initiative is focused on implementing a mature production capability during the EMD Phase. The PFRMS Project Office completed the Manufacturing Readiness Assessment for the warhead and system production lines. Each were assessed at a Manufacturing Readiness Level (MRL) 8. The production lines are on schedule to achieve MRL 9 prior to the combined Milestone C and FRP Decision.

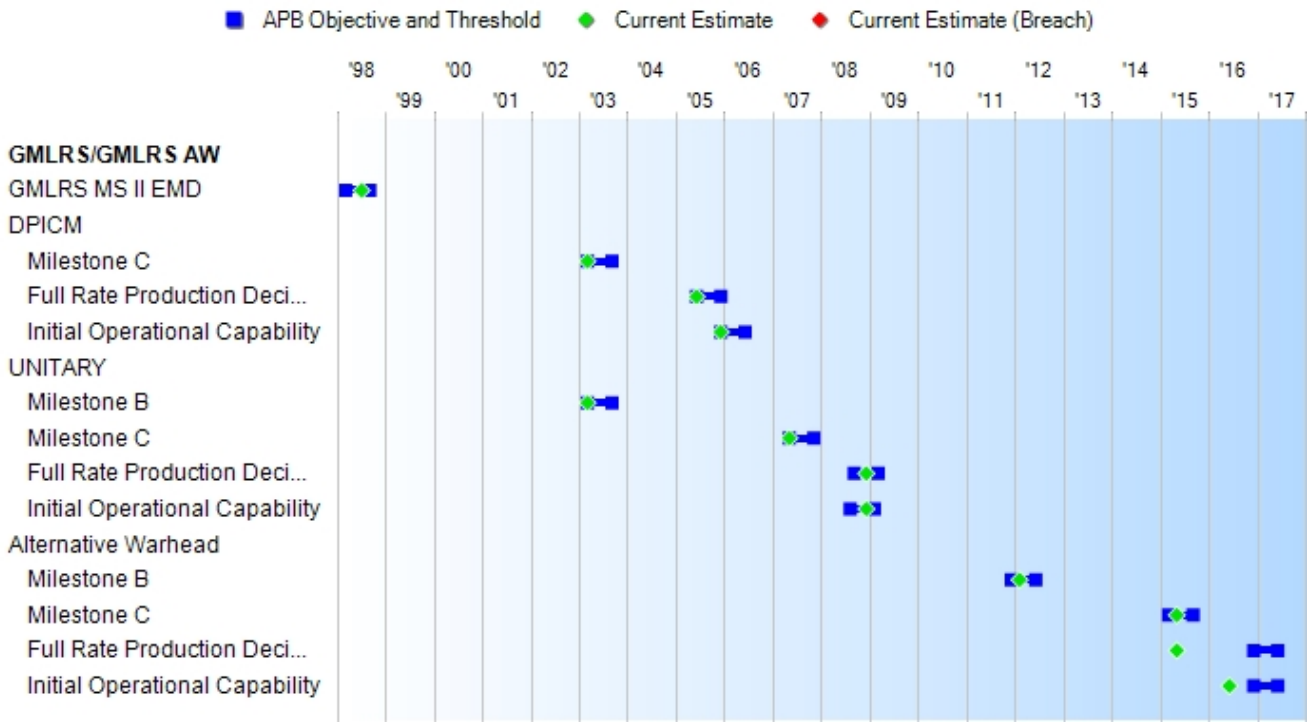
There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule



Milestones	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	
GMLRS MS II EMD	MAR 1998	MAR 1998	SEP 1998	JUL 1998	
DPICM					
Milestone C	MAR 2003	MAR 2003	SEP 2003	MAR 2003	
Full Rate Production Decision	MAR 2005	JUN 2005	DEC 2005	JUN 2005	
Initial Operational Capability	NOV 2006	DEC 2005	JUN 2006	DEC 2005	
UNITARY					
Milestone B	MAR 2003	MAR 2003	SEP 2003	MAR 2003	
Milestone C	SEP 2006	MAY 2007	NOV 2007	MAY 2007	
Full Rate Production Decision	SEP 2008	SEP 2008	MAR 2009	DEC 2008	
Initial Operational Capability	MAR 2008	AUG 2008	FEB 2009	DEC 2008	
Alternative Warhead					
Milestone B	N/A	DEC 2011	JUN 2012	FEB 2012	
Milestone C	N/A	MAR 2015	SEP 2015	MAY 2015	
Full Rate Production Decision	N/A	DEC 2016	JUN 2017	MAY 2015	
Initial Operational Capability	N/A	DEC 2016	JUN 2017	JUN 2016	(Ch-1)

Change Explanations

(Ch-1) The IOC current estimate changed from December 2016 to June 2016 due to the incorporation of the Should Cost strategy. The Should Cost strategy increased the scope of EMD and eliminated the formal LRIP allowing the Program Office to enter FRP earlier. The change in scope caused the planned Milestone C, now combined with the FRP Decision Review, to move into May 2015.

Acronyms and Abbreviations

DPICM - Dual Purpose Improved Conventional Munition
EMD - Engineering and Manufacturing Development
FRP - Full Rate Production

Performance

Characteristics	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
DPICM					
Range					
Max (Km)	70	70	60	73	70
Min (Km)	10	10	15	15	10
Effectiveness					
(Expected Fractional Damage [EFD])	30%	30%	30%	30%	30%
Reliability	.95	.95	.92	.88	.92
Hazardous Dud Rate	0	0%	2%/4%	1.71%/3.75%	1.71%/3.75%
UNITARY					
Range					
Max (Km)	70	70	60	70	70
Min (Km)	10	10	15	15	15
Effectiveness	30%	30%	Functional Kill	TBD	30%
Reliability	.95	.95	.92	.94	.92
Alternative Warhead					
Range					
Max (Km)	N/A	70	60	TBD	70
Min (Km)	N/A	10	15	TBD	15
Effectiveness	N/A	30%	Functional Kill	TBD	30%
Reliability	N/A	.95	.92	TBD	.92
Hazardous Dud Rate	N/A	0%	<1%	TBD	0%

Requirements Source

Operational Requirements Document (ORD) dated November 14, 2003 (includes Dual Purpose Improved Conventional Munitions), Multiple Launch Rocket System Guided Unitary Rocket ORD dated May 16, 2007 (in lieu of Capability Production Document (CPD)), and GMLRS System Alternative Warhead Increment III Capability Development Document (CDD) dated November 8, 2011

Change Explanations

None

Memo

The GMLRS AW test program has a reliability growth curve and will demonstrate 0.92 Reliability by the end of Production Qualification Testing.

The GMLRS DPICM Demonstrated Performance in Reliability changed from 0.87 to 0.88. The GMLRS Reliability Working Group conducted a GMLRS DPICM Reliability Scoring Conference on August 1, 2013. The GMLRS DPICM Reliability was assessed at 0.88 (117 Flight Successes of 133 Attempts).

The GMLRS Unitary Demonstrated Performance in Reliability changed from 0.92 to 0.94. The GMLRS Reliability Working Group conducted a GMLRS Unitary Reliability Scoring Conference on August 1, 2013. The GMLRS Unitary Reliability was assessed at 0.94 (117 Flight Successes/ 124 Attempts).

Acronyms and Abbreviations

DPICM - Dual Purpose Improved Conventional Munitions
Max (Km) - Maximum Kilometers
Min (Km) - Minimum Kilometers

Track to Budget

RDT&E

Appn		BA	PE		
Army	2040	07	0205778A		
	Project		**Name**		
	EG2		GMLRS AW		
	EG3		GMLRS		
Army	2040	07	0603778A		
	Project		**Name**		
	784		GMLRS	(Shared)	(Sunk)
	78G		GMLRS AW		(Sunk)

Procurement

Appn		BA	PE
Army	2032	07	0210602A
	Line Item		**Name**
	C65404		GMLRS (Army)
	C65406		GMLRS (Army)

Line Item C64400 is the parent line for Line Items C65404 and C65406.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY2003 $M			BY2003 $M	TY $M		
Appropriation	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	485.4	779.1	857.0	826.1	500.5	881.3	960.2
Procurement	9294.8	4321.2	4753.3	4642.3	11348.4	5511.7	6244.1
Flyaway	--	--	--	4611.2	--	--	6208.5
Recurring	--	--	--	4556.3	--	--	6146.4
Non Recurring	--	--	--	54.9	--	--	62.1
Support	--	--	--	31.1	--	--	35.6
Other Support	--	--	--	28.7	--	--	32.5
Initial Spares	--	--	--	2.4	--	--	3.1
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	9780.2	5100.3	N/A	5468.4	11848.9	6393.0	7204.3

Confidence Level for Current APB Cost 50% -

The confidence level used in establishing the cost estimate for GMLRS/GMLRS AW is 50% based on standard Department of the Army costing policy.

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	235	376	376
Procurement	140004	43560	43560
Total	140239	43936	43936

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2015 President's Budget / December 2013 SAR (TY$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	680.7	55.2	45.4	17.2	27.4	26.3	26.5	81.5	960.2
Procurement	2345.6	273.0	127.1	194.8	167.3	190.9	90.8	2854.6	6244.1
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2015 Total	3026.3	328.2	172.5	212.0	194.7	217.2	117.3	2936.1	7204.3
PB 2014 Total	3038.3	306.5	305.4	284.3	341.0	406.1	436.3	1576.0	6693.9
Delta	-12.0	21.7	-132.9	-72.3	-146.3	-188.9	-319.0	1360.1	510.4

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development	376	0	0	0	0	0	0	0	0	376
Production	0	19326	2172	535	1029	795	1009	265	18429	43560
PB 2015 Total	376	19326	2172	535	1029	795	1009	265	18429	43936
PB 2014 Total	376	19512	1746	1746	1566	2352	2916	3174	10548	43936
Delta	0	-186	426	-1211	-537	-1557	-1907	-2909	7881	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding TY$
2040 | RDT&E | Research, Development, Test, and Evaluation, Army

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
1998	--	--	--	--	--	--	13.6
1999	--	--	--	--	--	--	17.7
2000	--	--	--	--	--	--	26.8
2001	--	--	--	--	--	--	16.8
2002	--	--	--	--	--	--	45.6
2003	--	--	--	--	--	--	59.4
2004	--	--	--	--	--	--	54.4
2005	--	--	--	--	--	--	90.0
2006	--	--	--	--	--	--	98.3
2007	--	--	--	--	--	--	43.2
2008	--	--	--	--	--	--	33.5
2009	--	--	--	--	--	--	46.3
2010	--	--	--	--	--	--	18.4
2011	--	--	--	--	--	--	12.2
2012	--	--	--	--	--	--	43.3
2013	--	--	--	--	--	--	61.2
2014	--	--	--	--	--	--	55.2
2015	--	--	--	--	--	--	45.4
2016	--	--	--	--	--	--	17.2
2017	--	--	--	--	--	--	27.4
2018	--	--	--	--	--	--	26.3
2019	--	--	--	--	--	--	26.5
2020	--	--	--	--	--	--	26.8
2021	--	--	--	--	--	--	27.2
2022	--	--	--	--	--	--	27.5
Subtotal	**376**	**--**	**--**	**--**	**--**	**--**	**960.2**

Annual Funding BY$
2040 | RDT&E | Research, Development, Test, and Evaluation, Army

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2003 $M	Non End Item Recurring Flyaway BY 2003 $M	Non Recurring Flyaway BY 2003 $M	Total Flyaway BY 2003 $M	Total Support BY 2003 $M	Total Program BY 2003 $M
1998	--	--	--	--	--	--	14.3
1999	--	--	--	--	--	--	18.4
2000	--	--	--	--	--	--	27.4
2001	--	--	--	--	--	--	17.0
2002	--	--	--	--	--	--	45.6
2003	--	--	--	--	--	--	58.3
2004	--	--	--	--	--	--	52.1
2005	--	--	--	--	--	--	83.8
2006	--	--	--	--	--	--	89.0
2007	--	--	--	--	--	--	38.2
2008	--	--	--	--	--	--	29.1
2009	--	--	--	--	--	--	39.7
2010	--	--	--	--	--	--	15.5
2011	--	--	--	--	--	--	10.1
2012	--	--	--	--	--	--	35.3
2013	--	--	--	--	--	--	48.9
2014	--	--	--	--	--	--	43.0
2015	--	--	--	--	--	--	34.6
2016	--	--	--	--	--	--	12.9
2017	--	--	--	--	--	--	20.1
2018	--	--	--	--	--	--	18.9
2019	--	--	--	--	--	--	18.7
2020	--	--	--	--	--	--	18.5
2021	--	--	--	--	--	--	18.4
2022	--	--	--	--	--	--	18.3
Subtotal	**376**	**--**	**--**	**--**	**--**	**--**	**826.1**

Annual Funding TY$
2032 | Procurement | Missile Procurement, Army

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2003	822	110.4	--	13.1	123.5	6.6	130.1
2004	683	97.2	--	7.0	104.2	4.8	109.0
2005	954	96.9	--	3.7	100.6	11.3	111.9
2006	984	119.8	--	0.3	120.1	1.5	121.6
2007	925	123.4	--	0.9	124.3	0.7	125.0
2008	2070	241.8	--	20.8	262.6	1.1	263.7
2009	2646	298.7	--	10.1	308.8	0.4	309.2
2010	3228	343.7	--	--	343.7	0.4	344.1
2011	2442	264.1	--	--	264.1	0.4	264.5
2012	2964	332.8	--	--	332.8	0.4	333.2
2013	1608	232.9	--	--	232.9	0.4	233.3
2014	2172	269.6	--	3.0	272.6	0.4	273.0
2015	535	123.5	--	3.2	126.7	0.4	127.1
2016	1029	192.5	--	--	192.5	2.3	194.8
2017	795	166.8	--	--	166.8	0.5	167.3
2018	1009	190.4	--	--	190.4	0.5	190.9
2019	265	90.3	--	--	90.3	0.5	90.8
2020	2850	439.5	--	--	439.5	0.5	440.0
2021	2952	449.5	--	--	449.5	0.5	450.0
2022	3042	460.2	--	--	460.2	0.5	460.7
2023	3144	470.3	--	--	470.3	0.5	470.8
2024	3204	480.7	--	--	480.7	0.5	481.2
2025	3237	480.0	--	--	480.0	0.5	480.5
2026	--	--	39.1	--	39.1	--	39.1
2027	--	--	32.3	--	32.3	--	32.3
Subtotal	**43560**	**6075.0**	**71.4**	**62.1**	**6208.5**	**35.6**	**6244.1**

Annual Funding BY$
2032 | Procurement | Missile Procurement, Army

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2003 $M	Non End Item Recurring Flyaway BY 2003 $M	Non Recurring Flyaway BY 2003 $M	Total Flyaway BY 2003 $M	Total Support BY 2003 $M	Total Program BY 2003 $M
2003	822	106.1	--	12.6	118.7	6.3	125.0
2004	683	90.9	--	6.6	97.5	4.5	102.0
2005	954	88.2	--	3.4	91.6	10.2	101.8
2006	984	106.7	--	0.3	107.0	1.3	108.3
2007	925	107.8	--	0.8	108.6	0.6	109.2
2008	2070	208.0	--	17.9	225.9	0.9	226.8
2009	2646	253.7	--	8.6	262.3	0.3	262.6
2010	3228	286.9	--	--	286.9	0.4	287.3
2011	2442	216.6	--	--	216.6	0.4	217.0
2012	2964	268.8	--	--	268.8	0.3	269.1
2013	1608	183.1	--	--	183.1	0.3	183.4
2014	2172	209.2	--	2.3	211.5	0.3	211.8
2015	535	94.2	--	2.4	96.6	0.3	96.9
2016	1029	143.9	--	--	143.9	1.7	145.6
2017	795	122.2	--	--	122.2	0.4	122.6
2018	1009	136.8	--	--	136.8	0.4	137.2
2019	265	63.6	--	--	63.6	0.4	64.0
2020	2850	303.5	--	--	303.5	0.4	303.9
2021	2952	304.3	--	--	304.3	0.4	304.7
2022	3042	305.5	--	--	305.5	0.3	305.8
2023	3144	306.0	--	--	306.0	0.4	306.4
2024	3204	306.7	--	--	306.7	0.3	307.0
2025	3237	300.2	--	--	300.2	0.3	300.5
2026	--	--	24.0	--	24.0	--	24.0
2027	--	--	19.4	--	19.4	--	19.4
Subtotal	**43560**	**4512.9**	**43.4**	**54.9**	**4611.2**	**31.1**	**4642.3**

Cost Quantity Information
2032 | Procurement | Missile Procurement, Army

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2003 $M
2003	822	106.1
2004	683	90.9
2005	954	88.2
2006	984	106.7
2007	925	107.8
2008	2070	208.0
2009	2646	253.7
2010	3228	286.9
2011	2442	216.6
2012	2964	268.8
2013	1608	183.1
2014	2172	209.2
2015	535	94.2
2016	1029	143.9
2017	795	122.2
2018	1009	136.8
2019	265	63.6
2020	2850	305.5
2021	2952	304.3
2022	3042	305.5
2023	3144	306.0
2024	3204	306.7
2025	3237	298.2
2026	--	--
2027	--	--
Subtotal	**43560**	**4512.9**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	3/24/2003	1/7/2013
Approved Quantity	13998	4445
Reference	Milestone C ADM (DPICM)	Acquisition Strategy (AW)
Start Year	2003	2003
End Year	2005	2015

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the summation of 1,961 GMLRS Dual Purpose Improved Conventional Munition (DPICM) Rockets plus 2,484 GMLRS Unitary Rockets.

The GMLRS DPICM Milestone C Acquisition Decision Memorandum (ADM), approved on March 24, 2003, authorized LRIP quantity not to exceed 13,998 rockets. This quantity was based on the Army Acquisition Objective of 140,004 rockets. The actual GMLRS DPICM LRIP quantity is 1,961 rockets.

The GMLRS Unitary Milestone C ADM, signed May 2, 2007, authorized the LRIP quantity not to exceed 3,480 rockets based on the total expected procurement quantity of 34,848. The actual GMLRS LRIP quantity is 2,484 rockets.

The GMLRS AW Milestone B ADM was signed on February 19, 2012, which approved an LRIP quantity of 498 rockets. However, the Aquisition Strategey for GMLRS AW, signed on January 7, 2013, states the program will conduct the Inital Operational Test and Evaluation (IOT&E) during the Engineering and Manufacturing Development (EMD) phase and combine Milestone C with the Full Rate Production Decision Review. Therfore, no LRIP quantity is needed. Necessary assets will be procured to support IOT&E during EMD.

The Current Total LRIP reported in the December 31, 2012 SAR was 4943. This value was the summation of 1,961 GMLRS DPICM, 2,484 GMLRS Unitary, and 498 GMLRS AW. This quantity has been adjusted to 4,445, as explained above, to reflect actual LRIP quantities of GMLRS' three variants.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost $M	Memo
Singapore	3/26/2012	72	10.5	Unitary rockets.
Japan	5/13/2011	168	25.0	Unitary rockets.
Singapore	2/18/2011	84	11.7	Unitary rockets
Jordan	1/17/2010	432	60.0	Unitary rockets.
Japan	2/13/2009	180	24.7	Unitary rockets.
Bahrain	12/5/2008	36	6.0	Unitary rockets.
Singapore	12/5/2007	108	15.0	Unitary rockets.
United Arab Emirates	8/1/2007	1560	212.5	DPICM and Unitary rockets.

The Memorandum of Understanding Partner nations continue to procure GMLRS rockets from the United States (U.S.) production line.

The United Kingdom (UK), Germany, France, and Italy are Cooperative Partners and are not FMS customers. The UK has procured 2,844 rockets, of which over 850+ have been successfully fired in a combat environment in support of U.S. Forces. Germany has procured 444 rockets under GMLRS Full Rate Production (FRP) I, III, IV, and V contracts. France has procured 270 rockets under GMLRS FRP IV and V contracts. Italy has procured 66 rockets under GMLRS FRP VII and IX contract.

Nuclear Costs

None

Unit Cost

Unit Cost Report

Unit Cost	BY2003 $M Current UCR Baseline (FEB 2012 APB)	BY2003 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	5100.3	5468.4	
Quantity	43936	43936	
Unit Cost	0.116	0.124	+6.90
Average Procurement Unit Cost (APUC)			
Cost	4321.2	4642.3	
Quantity	43560	43560	
Unit Cost	0.099	0.107	+8.08

Unit Cost	BY2003 $M Revised Original UCR Baseline (JUN 2007 APB)	BY2003 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	4578.4	5468.4	
Quantity	43795	43936	
Unit Cost	0.105	0.124	+18.10
Average Procurement Unit Cost (APUC)			
Cost	3966.7	4642.3	
Quantity	43560	43560	
Unit Cost	0.091	0.107	+17.58

In accordance with the April 26, 2007 Acquisition Decision Memorandum, separate APUCs and PAUCs have been prepared for all GMLRS configurations (Dual Purpose Improved Conventional Munitions (DPICM) and Unitary). The GMLRS hardware will maintain approximately 80-percent commonality, regardless of which warhead is integrated into the systems. Consequently, changes in cost of any variant will directly affect the APUCs and PAUCs of the others.

The split-out APUC and PAUC of the GMLRS variants are:

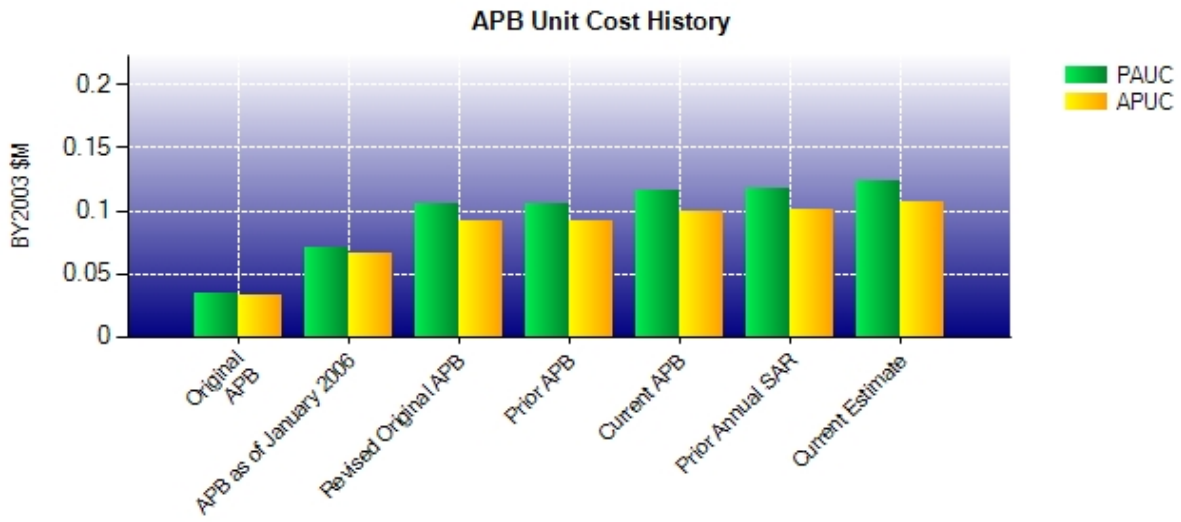
GMLRS DPICM APUC ($0.133M (BY$ 2003); Qty = 2,472)
GMLRS UNITARY APUC ($0 .099M (BY$ 2003); Qty = 23,022)
GMLRS AW APUC ($0.111M (BY$ 2003); Qty = 18,066)

GMLRS DPICM PAUC ($0.189M (BY$ 2003); Qty = 2,565)
GMLRS UNITARY PAUC ($0.113M (BY$ 2003); Qty = 23,164)

GMLRS AW PAUC ($0.120M (BY$ 2003); Qty = 18,207)

Because all GMLRS Variants benefit from the RDT&E future system enhancements (Insensitive Munitions, obsolescence, cost reduction initiatives), an artificial pro-rating would have to be made to include them in the split-out PAUCs above. Therefore, the split-out PAUCs above exclude the funding for these future enhancements. However, these dollars are included in the composite PAUC shown in the Unit Cost section.

Unit Cost History



		BY2003 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	MAR 1998	0.034	0.032	0.039	0.037
APB as of January 2006	MAY 2003	0.070	0.066	0.084	0.081
Revised Original APB	JUN 2007	0.105	0.091	0.133	0.119
Prior APB	JUN 2007	0.105	0.091	0.133	0.119
Current APB	FEB 2012	0.116	0.099	0.146	0.127
Prior Annual SAR	DEC 2012	0.118	0.101	0.152	0.133
Current Estimate	DEC 2013	0.124	0.107	0.164	0.143

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial PAUC Dev Est	Changes								PAUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.039	-0.003	0.001	0.001	0.009	0.037	0.000	0.000	0.045	0.084

Current SAR Baseline to Current Estimate (TY $M)

PAUC Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.084	0.013	-0.012	0.035	0.000	0.044	0.000	0.000	0.080	0.164

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial APUC Dev Est	Changes								APUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.037	-0.003	0.004	0.001	0.006	0.036	0.000	0.000	0.044	0.081

Current SAR Baseline to Current Estimate (TY $M)

APUC Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.081	0.013	-0.025	0.036	0.000	0.038	0.000	0.000	0.062	0.143

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone I	N/A	N/A	N/A	N/A
Milestone II	N/A	MAR 1998	MAR 1998	JUL 1998
Milestone C	N/A	OCT 2003	N/A	N/A
IOC	N/A	APR 2004	N/A	N/A
Total Cost (TY $M)	N/A	1688.6	11848.9	7204.3
Total Quantity	N/A	43182	140239	43936
Prog. Acq. Unit Cost (PAUC)	N/A	0.039	0.084	0.164

The Milestone C and IOC reported above reflect the GMLRS Dual Purpose Improved Conventional Munition variant. Milestone C for the GMLRS Unitary variant was approved May 2007. Milestone B for the GMLRS AW variant was approved February 2012.

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	500.5	11348.4	--	11848.9
Previous Changes				
Economic	+12.6	+612.5	--	+625.1
Quantity	+196.0	-8922.7	--	-8726.7
Schedule	+8.7	+1411.6	--	+1420.3
Engineering	--	+10.8	--	+10.8
Estimating	+163.4	+1340.4	--	+1503.8
Other	--	--	--	--
Support	--	+11.7	--	+11.7
Subtotal	+380.7	-5535.7	--	-5155.0
Current Changes				
Economic	-2.5	-36.0	--	-38.5
Quantity	--	--	--	--
Schedule	-17.8	+156.2	--	+138.4
Engineering	--	--	--	--
Estimating	+99.3	+311.2	--	+410.5
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+79.0	+431.4	--	+510.4
Total Changes	+459.7	-5104.3	--	-4644.6
CE - Cost Variance	960.2	6244.1	--	7204.3
CE - Cost & Funding	960.2	6244.1	--	7204.3

Summary Base Year 2003 $M				
	RDT&E	**Proc**	**MILCON**	**Total**
SAR Baseline (Prod Est)	485.4	9294.8	--	9780.2
Previous Changes				
Economic	--	--	--	--
Quantity	+159.0	-5929.7	--	-5770.7
Schedule	+8.2	+241.7	--	+249.9
Engineering	--	+8.5	--	+8.5
Estimating	+119.3	+791.9	--	+911.2
Other	--	--	--	--
Support	--	+9.9	--	+9.9
Subtotal	+286.5	-4877.7	--	-4591.2
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	-13.3	--	--	-13.3
Engineering	--	--	--	--
Estimating	+67.5	+224.7	--	+292.2
Other	--	--	--	--
Support	--	+0.5	--	+0.5
Subtotal	+54.2	+225.2	--	+279.4
Total Changes	+340.7	-4652.5	--	-4311.8
CE - Cost Variance	826.1	4642.3	--	5468.4
CE - Cost & Funding	826.1	4642.3	--	5468.4

Previous Estimate: December 2012

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-2.5
Adjustment for current and prior escalation. (Estimating)	+1.3	+1.6
Revised estimate for Insensitive Munitions (IM) motor. (Estimating)	+3.1	+4.5
Congressional reductions due to perceived cost growth (GMLRS AW). (Estimating)	-11.0	-14.1
Schedule change due to streamlining test program. (Schedule)	-13.3	-17.8
Revised estimate for IM pod. (Estimating)	+79.0	+113.4
Reduction in funding as a result of Sequestration and Army and DoD withholds. (Estimating)	-4.9	-6.1
RDT&E Subtotal	+54.2	+79.0

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-36.0
Stretch-out of procurement buy profile due to reduction of funding in FY 2015 to FY 2019 while maintaining Army Procurement Objective quantity. (Schedule)	0.0	+156.2
Adjustment for current and prior escalation. (Estimating)	+7.5	+9.6
Revised estimate for GMLRS AW warhead due to analysis of data from the Critical Design Review for material and proccesses. (Estimating)	+95.0	+141.2
Improved Rocket Motor delayed start. (Estimating)	-8.7	-12.6
Improved Rocket Motor tooling cost reduction. (Estimating)	-3.4	-4.5
Revised estimate for two additional years of production for the following activities: (Subtotal)	+79.0	+130.4
Revised estimate for System Test and Evaluation level of effort. (Estimating)	(+12.4)	(+20.1)
Revised estimate for Systems Engineering Program Management level of effort. (Estimating)	(+39.6)	(+67.0)
Revised estimate for Industrial Engineering Services level of effort. (Estimating)	(+13.6)	(+22.1)
Revised estimate for Engineering Change Orders. (Estimating)	(+13.4)	(+21.2)
Change of product mix between variants and rate effects. (Estimating)	+55.3	+47.1
Adjustment for current and prior escalation. (Support)	+0.2	0.0
Increase in Other Support due to updated testing costs. (Support)	+0.3	0.0
Procurement Subtotal	+225.2	+431.4

Contracts

Appropriation: Procurement

Contract Name	**GMLRS FRP V**
Contractor	LMMFC-D
Contractor Location	Grand Prairie, TX 75051-0000
Contract Number, Type	W31P4Q-10-C-0270, FFP/CPFF
Award Date	May 13, 2010
Definitization Date	July 12, 2010

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
474.2	N/A	4500	464.7	N/A	4500	464.7	464.7

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the fact that the Initial Contract Price Target and Current Contract Price Target experienced various up and down dollar changes over the years. Therefore the difference can be attributed either to option exercises, change order incorporations, negotiated reopener clauses, et cetera.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP/CPFF contract.

General Contract Variance Explanation

Cost and Schedule reporting is not required on the FFP portion of this contract. The value of the CPFF portion of the contract is below the monetary threshold for Earned Value Management.

Contract Comments

This contract is more than 90% complete; therefore, this is the final report for this contract.

Appropriation: Procurement

Contract Name	**GMLRS FRP VI**
Contractor	LMMFC-D
Contractor Location	Grand Prairie, TX 75051-0000
Contract Number, Type	W31P4Q-11-C-0166, FFP/CPFF
Award Date	June 10, 2011
Definitization Date	June 10, 2011

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
445.4	N/A	4440	483.7	N/A	4704	483.7	483.7

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the fact that the Initial Contract Price Target and Current Contract Price Target experienced various up and down dollar changes over the years. Therefore the difference can be attributed either to option exercises, change order incorporations, negotiated reopener clauses, et cetera.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP/CPFF contract.

General Contract Variance Explanation

Cost and Schedule reporting is not required on the FFP portion of this contract. The value of the CPFF portion of the contract is below themonetary threshold for Earned Value Management.

Appropriation: Procurement

Contract Name	**GMLRS FRP VII**
Contractor	LMMFC-D
Contractor Location	Grand Prairie, TX 75051-0000
Contract Number, Type	W31P4Q-12-C-0151, FFP/CPFF
Award Date	June 29, 2012
Definitization Date	June 29, 2012

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
353.2	N/A	3306	548.6	N/A	5550	548.6	548.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the fact that the Initial Contract Price Target and Current Contract Price Target experienced various up and down dollar changes over the years. Therefore the difference can be attributed either to option exercises, change order incorporations, negotiated reopener clauses, et cetera.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP/CPFF contract.

General Contract Variance Explanation

Cost and Schedule reporting is not required on the FFP portion of this contract. The value of the CPFF portion of the contract is below themonetary threshold for Earned Value Management.

Contract Comments

Full Rate Production (FRP) VIII is an option modification to FRP VII, which was awarded December 2012.

Appropriation: RDT&E

Contract Name	**AW EMD**
Contractor	LMMFC-D
Contractor Location	Grand Prairie, TX 75051-0000
Contract Number, Type	W31P4Q-12-C-0121, FFP
Award Date	March 30, 2012
Definitization Date	March 30, 2012

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
25.0	N/A	N/A	105.9	N/A	N/A	105.9	89.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the fact that the Initial Contract Price Target and Current Contract Price Target experienced various up and down dollar changes over the years. Therefore the difference can be attributed either to option exercises, change order incorporations, negotiated reopener clauses, et cetera.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

Appropriation: Procurement

Contract Name	**GMLRS FRP IX**
Contractor	LMMFC-D
Contractor Location	Grand Prairie, TX 75051-0000
Contract Number, Type	W31P4Q-14-C-0066, FFP
Award Date	December 20, 2013
Definitization Date	May 30, 2014

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
255.1	N/A	1824	255.1	N/A	1824	255.1	255.1

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

Contract Comments

This is the first time this contract is being reported.

GMLRS Full Rate Production IX contract was executed on December 20, 2013, as an Undefinitized Contract Action in the Not to Exceed (NTE) amount of $255.1M. The NTE was awarded for GMLRS Unitary plus Low Cost Reduced range Practice Rocket requirements for the Army, United States Marine Corps, and Italy.

Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	376	235	376	62.50%
Production	14940	14940	43560	34.30%
Total Program Quantity Delivered	15316	15175	43936	34.54%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	7204.3	Years Appropriated	17
Expended to Date	2633.8	Percent Years Appropriated	56.67%
Percent Expended	36.56%	Appropriated to Date	3354.5
Total Funding Years	30	Percent Appropriated	46.56%

The above data is current as of 3/20/2014.

Operating and Support Cost

GMLRS/GMLRS AW

Assumptions and Ground Rules

Cost Estimate Reference:
GMLRS AW Milestone B Army Cost Position (Cost Review Board, December 2011).

Sustainment Strategy:
The Sustainment Strategy is two-level maintenance - field and sustainment. An organic depot capability was established for GMLRS Dual Purpose Improved Conventional Munition (DPICM) and Unitary variants in 2nd Quarter of FY 2009; and this capability will be upgraded to incorporate GMLRS AW in 1st Quarter of FY 2016.

The Unitized O&S Costs include all variants (GMLRS DPICM, Unitary, and AW). The rocket pod refers to the Rocket Pod Container that consists of six guided rockets with an expected service life of 10-years and procurement of 7,260 rocket pods.

Antecedent Information:
None.

Unitized O&S Costs BY2003 $K		
Cost Element	**GMLRS/GMLRS AW Avg Annual Cost per Rocket Pod**	**No GMLRS Antecedent (Antecedent) N/A**
Unit-Level Manpower	0.028	0.000
Unit Operations	0.041	0.000
Maintenance	0.964	0.000
Sustaining Support	0.992	0.000
Continuing System Improvements	0.193	0.000
Indirect Support	0.000	0.000
Other	0.000	0.000
Total	2.218	--

Unitized Cost Comments:
The Cost Element, Sustaining Support, includes Missile Stockpile Reliability Certification, base operations, second destination transportation, System Engineering Program Management (SEPM), and training. The Continuing System Improvements consists of software maintenance. Total Cost = Average Annual Cost per Rocket Pod * Number of Rocket Pods * Life per Rocket Pod = $2.218K * 7260 Rocket Pods * 10 Years = $161.0M

	Total O&S Cost $M			
	Current Production APB Objective/Threshold		Current Estimate	
	GMLRS/GMLRS AW		GMLRS/GMLRS AW	No GMLRS Antecedent (Antecedent)
Base Year	169.5	186.5	161.0	N/A
Then Year	252.9	N/A	260.9	N/A

Total O&S Costs Comments:

O&S Cost Variance		
Category	**Base Year 2003 $M**	**Change Explanation**
Prior SAR Total O&S Estimate December 2012	158.2	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Programmatic/Planning Factors	+2.8	Sustainment costs extended due to additional two years of fielding.
Other	0.0	
Total Changes	+2.8	
Current Estimate	161.0	

Disposal Costs:

Demilitarization cost for GMLRS (Ammo-funded) is not included in the estimate above. The estimated Demilitarization cost is $63.9M (BY$ 2003).